THURSDAY, MARCH 27, 1890.

A SOUTH LONDON POLYTECHNIC.[1]

SOME little time ago we expressed our views on the general scheme put forward by the Charity Commissioners for the establishment of Polytechnics (we must use the word, however inapplicable) in various parts of London. Since then we have received a copy of the architect's report on the requirements of a Technical Institute for Battersea. It may be well to recall to the minds of readers the main features of the proposed scheme. The Polytechnic in Regent Street, and the People's Palace at Mile End, are to receive large endowments to enable them to continue and develop the work on which they are already engaged, a large sum is to be given to found a City Polytechnic, and series of three new Institutes are to be established in various parts of South London; whilst others, at present more or less shadowy and prospective, are talked of for other parts of the metropolis.

Of the three new Institutes, the plans for which may be said to be in an advanced condition, two will be housed in buildings already established. The Goldsmiths' Company have bought the Royal Naval School at New Cross, and are adapting and altering it so as to be ready to be opened for its new purpose in October next. The premises of the Borough Road Training College have been secured for the second of the Institutes, which is probably to be partly endowed by the Ironmongers' Company. The scheme in this case is not, we believe, yet published, and some delay may take place; but, if all goes smoothly, this Institute also may be ready to begin work before very long.

The third of the proposed South London Polytechnics is the Battersea Institute, for which we have received the draft plans. Here there is no existing building to be adapted. Everything must start *de novo*, and only the limits of the funds at their command, and their uncertainty as to the future tastes and wants of the district, need restrict the trustees in their efforts to make the Institute in every way worthy of its purpose.

And here we may at the outset congratulate the trustees on the mode in which they have determined to proceed. They have intrusted to Mr. Rowland Plumbe the task of visiting other technical schools, obtaining necessary information, and preparing a detailed statement of the requirements of the Battersea Institute, and have since circulated his draft Report among various experts, with requests for criticisms and suggestions. The plans with which the Report is illustrated are not intended to be in any way final, but merely to suggest the nature of the requirements of the Institute to the architect, whoever he may be, who is ultimately selected to design the building. It is clear that no stone will be left unturned, so far as the Committee are concerned, to make the Battersea Institute a model Polytechnic.

We may congratulate the Committee on another matter. In our former article we pointed out the inexpediency of attempting too much at once, while the whole question of the future of Polytechnics is in an experimental stage. Since then, Sir Bernhard Samuelson and other members of the Executive Committee of the Technical Association have publicly impressed similar views upon the Vice-President of the Council, into whose hands the Commissioners' scheme has now passed. We are, therefore, glad to see that Mr. Plumbe expressly states that his plans are drawn up so that the proposed building may be gradually constructed as the need arises; and though he does not conceal his own desire to have the whole building erected at once, we are glad to learn that the Committee have decided to let the institution grow as the number of students increases, and not to erect a great shell until they see more clearly the extent of the demand which it is to supply. We gather further that the sum required for the endowment of the Institute is not yet complete, and we may take it for granted that no attempt will be made to start operations until this necessary preliminary step is completed. Thus those who are anxious that the whole scheme for Polytechnics should not be imperilled by hastily founding too many at once before one new Institute has been made a success, may feel assured that the necessary interval which must elapse before the foundation-stone of the Battersea Institute can be laid will give some further opportunity to the promoters to profit by the experience which accumulates every day of the working of similar institutions elsewhere.

To quote Mr. Plumbe's Report, "The combined form of Institute . . . is a growth almost of the present day, and the subject as now presented is, with the hereinafter mentioned exception, comparatively new and *without precedent*." The exception referred to is Mr. Hogg's Polytechnic, and as this is the product of the gradual growth of seventeen years, the argument for going "slow and sure" is irresistible. The promoters of the Goldsmiths' Institute at New Cross are, we understand, equally alive to this necessity.

Mr. Plumbe has made inquiries, for the purpose of his Report, into the nature of the industries of Battersea, and has visited several of the chief Technical Institutes in London, from the Bow and Bromley Institute up to the Central Institution of the City and Guilds Institute. He might, perhaps, with advantage have extended his visit to some of the more important provincial centres, which in some ways offer examples which are not to be found in the metropolis of the kind of equipment required for a popular technical school. London has long been behindhand in the matter, except for the higher Colleges at South Kensington, which are intended to serve a purpose so different that their example may be disregarded. There are, indeed, the two existing Polytechnic Institutes, and apparently Mr. Plumbe has derived from them almost all his information as to the requirements of the Battersea Institute. The Regent Street Polytechnic he considers "most undoubtedly must serve as a model to all succeeding institutions." He presumes that the Committee will "follow to some extent the curriculum of study adopted at Mr. Quintin Hogg's Polytechnic and the People's Palace."

Without in any way challenging these conclusions, it is only fair to point out that the first-hand inquiries on which they are based are mostly derived from these very institutions. Now it is important that in a new departure like that which it is proposed to make at Battersea we should not blindly follow in the rut of any one existing institution, and the only way to avoid this is to profit by the experience of other technical institutes in various parts of the country. Mr. Plumbe quotes the Report (now nearly six years old) of the Royal Commission on Technical Instruction, but many of the more important provincial schools have sprung up since that date, and the Commission on Elementary Education to which he refers only dealt with elementary schools. He is consequently led to the very doubtful conclusion that provincial schools offer no example for London because of the "thoroughness and great cost of the education given (which further required the whole time of the pupils for a number of years)." "I have not," he continues, "thought it necessary to spend any further time on the examination of buildings of this character, particularly as I found those of most experience with whom I conferred on the subject were distinctly of my opinion."

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[1] "South London Polytechnic Institutes—Report on Requirements for the Battersea Institute." By Rowland Plumbe, F.R.I.B.A.

Who these experts were we are not told, but the above remarks are scarcely applicable to such technical schools as those at Bradford, Huddersfield, Keighley, Manchester, Bristol, and other large centres, which are doing for the artisan population of those districts much the same service as is expected from the Battersea Institute.

Whether instruction be elementary or advanced, whether it be intended for masters or for workmen, it ought to be "thorough," and thoroughness implies to some extent costliness. "To educate the industrial classes on a large scale at a comparatively nominal cost" is an attempt which looks better on paper than in practice.

And this brings us to the question of the financial aspect of the scheme. Mr. Plumbe states that his estimate of the cost of a given amount of accommodation is based on a memorandum by Mr. H. Cunynghame, in which he calculates that the building, including land, &c., ought to be erected and fitted up for £11 per student or member and that the cost of annual maintenance, in addition to fees and grants, will amount to 15*s.* per head per annum. This estimate is naturally considered by Mr. Plumbe to be "moderate in the extreme." It is much to be desired that the basis of Mr. Cunynghame's calculation should be made public, so that the materials should exist for the formation of a sound judgment thereon.

As regards the cost of building, all depends of course on the kind of building proposed; but it would be melancholy, indeed, if an institution directly designed to elevate the ideas and refine the taste of the population of dismal and ugly South London, were to be housed in a building "of the plainest and most utilitarian character"—to say nothing of the quality of materials used in its construction.

But from an educational point of view an even more important consideration is the necessary amount of endowment. The allowance of 15*s.* a head, "including repairs and maintenance," seems very meagre, if fees are to be low, and at the same time first-class teaching power and management are to be secured, *and paid for*. To base an estimate on the current expenses of the Regent Street Polytechnic is to run the risk of serious error, for it is well-known that much of the work of organization and direction has there been performed gratis, or at far below market value, thanks to the enthusiasm of a few devoted workers. Can the Committees of the new Institutes call into existence a similar amount of enthusiasm among men of leisure and means in connection with each of the proposed Institutes (not, be it remembered, of a religious character), which will justify them in relying on being permanently saved the bulk of the expenses of management? If not, it is clear that a good deal will have to be added to the estimate of 15*s.* a head.

Another matter which is of importance from a financial point of view is the question of the position to be occupied by the day-school with respect to other sections of the new Institute. On this point, the language of the Commissioners' scheme is vague almost to the point of unintelligibility. There are evident advantages in utilizing the Polytechnic buildings in the day-time for the purpose of a school which may afterwards serve as a feeder to the evening classes. But it should be an organic part of the Institute; not a mere appendage, the existence of which may be tolerated so long as it interferes with no other department of work and claims no share in the endowment. Yet such seems to be the present intention of the Charity Commission, so far as we can gather from their published statements. The language of Mr. Plumbe's Report confirms this conclusion, against which it is time to record an emphatic protest. In our opinion, the day-school, if properly conducted, should ultimately become the corner-stone of the whole educational work of the Institute, for much more systematic teaching can be done in the case of boys working all their time than can be hoped for with students devoting a couple of evenings a week to instruction and recreation. Doubtless, in Regent Street a secondary school can be made self-supporting, and even profitable, by its fees; but such an attempt would be undesirable, and indeed impossible, in the case of a school for the "poorer classes" in a poor district. A high-fee'd school might perhaps fill itself at the expense of emptying other schools in the neighbourhood, but it would not fill the gap which wants filling. Under these circumstances, to condemn the day-school to pay its way is to condemn it to become a mere grant-earning machine, neglecting all subjects which do not pay, and constructing its curriculum strictly on the lines of the South Kensington Directory. What is wanted is a good modern school with a low fee, and a large number of scholarships for competition among the scholars of elementary schools. But such a school cannot be made self-supporting, and the Battersea Committee would do well to induce the Charity Commissioners, before it is too late, to recognize this fact frankly in the scheme which they are about to draw.

Again, we should be glad to know how wide a margin Mr. Cunynghame's estimate allows for the cost of what we may term "local adaptation." For example, in Mr. Plumbe's list of local industries we find chemical works, match factories, and gas-works. From this it would seem that there is room for the teaching of chemistry in its application to various industries. But such instruction, though it is one of the chief objects with which the technical side of the Institute is started, must involve extra cost, for it will not produce grant; and Mr. Plumbe's conclusion from his inquiry, that the "science and art classes should be carried on so that the Government grant be earned," is a *non sequitur;* at all events until the Science and Art Department award grants for distinctively technical subjects under the new Technical Instruction Act.

We cannot help thinking that if due weight is allowed to these considerations the estimate of 15*s*. a head will be largely raised (unless compensation be sought by cutting down some of the more expensive trade classes); and as we suppose the endowment cannot be much increased, the number of students to be provided for must be necessarily diminished. In fact, the whole scale on which Mr. Plumbe has calculated the requirements of the Institute may have to be somewhat revised. To those who consider large numbers all-important, this may seem deplorable, but we are convinced that the Committee of the South London Polytechnic will prefer the interests of efficiency to those of temporary display.

One other matter which we notice with some surprise and regret is the apparent omission in the plans to provide committee-rooms and other accommodation which can be utilized by local working men's organizations. We referred in our former article to the importance of making the Institutes real working-class centres, and the reply of the Charity Commissioners to the deputation from the London Trades Council on the subject was supposed to be favourable to the provision in connection with each Institute of rooms which could be utilized on moderate payment by various working-class societies which now too often have to meet in public-houses. The omission of any such provision in the plans for Battersea is a serious blemish on the scheme, which, however, can easily be corrected, as soon as pointed out.

The Committee will have a great opportunity, which it is to be hoped they will use aright, of providing the inhabitants of South London with a technical and recreative Institute, which in its close adaptation to local needs may serve as model for all such Institutes in the future.

A GEOLOGICAL MAP OF THE ALPINE CHAIN.

Geologische Übersichtskarte der Alpen. Entworfen von Dr. Franz Noë. Mit einem Begleitworte. (Wien: Ed. Hölzel, 1890.)

GOOD, and in some cases even elaborate, geological maps exist for parts of the Alps; but one to exhibit the chain as a whole, without being on a scale so large as to be unwieldy or so small as to be indistinct, has been hitherto a desideratum. This has now been supplied by Dr. Noë. The scale adopted is 1 in 1,000,000, or about 16 miles to the inch, which very well satisfies both the above conditions. A glance at the list of authorities which have been consulted indicates that Dr. Noë has had no easy task; for in Alpine geology there are indeed consellors enough, but their multitude is not strength, for they are so often at variance.

At the present stage of knowledge, the chartographer must be content, in dealing with the crystalline schists (using that term in a rather wide sense), to colour his map petrographically—that is to say, he must, as far as possible, record facts and avoid theories. Dr. Noë has endeavoured, though not with complete success, to render his maps petrographical in the parts where doubt might arise, viz. those occupied by that crystalline series which, whatever may be its age, in the Alps always underlies any sedimentary rock to which a date can be assigned. The principle of coloration agrees very nearly with that suggested by the International Geological Congress at Bologna. Crimson denotes the deep-seated igneous rocks of the more acid type, dull green the more basic; two slightly different shades of red represent respectively the older (and in most cases more acid) volcanics and the newer volcanics. Four colours are employed to express the "crystalline schist" series: one, for the Central gneiss and some of the oldest mica-schists; another, for the less coarsely crystalline (and probably newer) mica-schists, together with calc-schists, chlorite-schists, &c.; a third, for certain crystalline schists, phyllites, and clay-slates of uncertain geological age; and marbles are indicated by a deep blue. Palæozoic rocks (exclusive of Permian) are coloured purple, the different series being distinguished by symbols; pale brown denotes Permian; tints of blue represent the Triassic and Jurassic strata; green signifies Neocomian and Cretaceous; orange the older Tertiary, flysch having a separate tint; one shade of yellow is used for Miocene and Pliocene; another for Diluvial and Alluvial deposits—the former a word of misleading origin, which ought to have long since disappeared from geological nomenclature.

Very wisely, Dr. Noë has included in his map something more than the Alps. Not only do we find the Jura, but also this region is extended far enough in the direction of Dole to exhibit the remarkable exposure of the old crystalline floor, north of that town. On the right bank of the Rhine, in the neighbourhood, of Sackingen, a considerable strip of crystalline rock is shown, the end of the great Schwarzwald *massif;* and north of the Eastern Alps we find the crystalline rocks indicated as they uprise from beneath the Miocene on the left bank of the Danube, as, for example, near Linz, and again at Pressburg. The geological colours also are carried down the east coast of the Adriatic as far as Spalato, so that the connection of the Istrian and Dalmatian Alps with the main chain is made perfectly clear. Unfortunately, however, Dr. Noë has not applied the same treatment to the Apennines, though their connection with the Alpine chain cannot be of less geological importance, for he brings the colours to an abrupt end a few miles west of Savona.

In one or two respects the above system of coloration seems open to criticism. The tint and the lines used to indicate mountain land are productive of some confusion, and increase the difficulty of identifying the colours, without, as we think, producing a compensating advantage. The use of three colours for the Trias-Rhætic seems a disproportionate subdivision when only one is allotted to Neocomian-Cretaceous. We are, however, disposed to differ more seriously—though only occasionally—from Dr. Noë as to his use of the colours for the divisions of the crystalline schists. One of these is made too inclusive, because it is applied to clay-slates and phyllites as well as to rocks which must be admitted to be crystalline schists. Granted that there is sometimes a difficulty in separating these in the field, we fail to see the propriety of deliberately effacing the distinction. Fortunately, however, this confusion, owing to the scale of the map, does not